

# INFRASTRUCTURE

## Reducing Energy Consumption

The United States Air Force operates and maintains over 700 million square feet of facilities at 166 major or minor installations around the world. That's more square footage than all Wal-Mart retail locations across the country.

Since the establishment of a Facility Energy Program in 1985, energy used at Air Force facilities has been reduced by 30%. Several Air Force bases run their facilities with renewable power generated on-site from solar, wind, and biomass sources. The Air Force is currently the United States' third largest purchaser of green power and a winner of the 2006 U.S. Environmental Protection Agency's Climate Protection Award. Since 1985, the Air Force has saved 308 trillion BTUs and \$2.9 billion through efficiencies in facilities energy. All of this—and more—has been accomplished without impacting the mission or quality of life of those who work or live on the installations.

Still, it's not enough. Consequently, the Air Force has developed and implemented an infrastructure energy program that includes investment and improvements, sustainable design, and training and recognition.

## Infrastructure Investments

The Air Force infrastructure investment and improvement program incorporates several programs designed to create and fund cost-effective energy efficiencies in new and existing facilities. Jointly, these programs save the Air Force about \$90 million.

- As part of the Congressionally-approved Military Construction Program, the Air Force receives annual funding of about \$15 to 20 million for its Energy Conservation Investment Program. More than 90 projects have been awarded, with yearly savings projected of \$34 million and 3 trillion BTUs. Projects have included installing new, energy-efficient boilers/chillers and lighting, more precise controls on air-handling systems, and high-efficiency motors on all types of equipment.

- Third-party financing through Energy Savings Performance Contracts (ESPCs) have proven to be a viable method for implementing major energy projects. ESPCs are agreements between the Air Force and private industry to install and maintain performance-enhancing, energy-efficient equipment. Energy service companies assume the capital costs of installing

this equipment and are then paid directly from the savings. Since 1997, projects with an investment value of over \$513 million have been awarded with guaranteed energy cost savings of more than \$1.1 billion over the 25-year term of these contracts.

- Utility Energy Savings Contracts, like ESPCs, allow for the installation and maintenance of performance-enhancing, energy-efficient equipment but with a contract of up to 10 years between bases and their local utility companies.



This artist's drawing shows the new 144-room dormitory that will showcase the United States Air Force's success in areas of energy and sustainable development. The project is being built at Shaw Air Force Base, South Carolina and is expected to gain a Leadership in Energy and Environmental Design silver certification upon completion. (Courtesy drawing)

# INFRASTRUCTURE OPERATIONS



Airman 1st Class Christopher Felton (left) and Col. Rick Martin save energy by installing pipe insulation on a high-temperature water line in a hangar at McGuire Air Force Base, New Jersey. (U.S. Air Force photo)

- The Air Force Utility Rates Management Team works in three major areas—rate intervention, rate negotiations, and special studies to help major commands and bases minimize the cost of utility services. Cost avoidance averages nearly \$50 million annually.

## Infrastructure Improvements and Sustainable Design

Not all Air Force installation energy improvements require a capital investment. Strategic Operation and Maintenance (O&M) programs ensure that initial energy savings become continuous savings. In existing buildings, a well-crafted O&M program can save 5% to 20% on energy bills without a significant capital investment.

The Air Force supports the Energy Star® program, a joint effort of the U.S. Environmental Protection Agency and the U.S. Department of Energy that promotes energy efficiency in buildings and equipment. Air Force facilities that

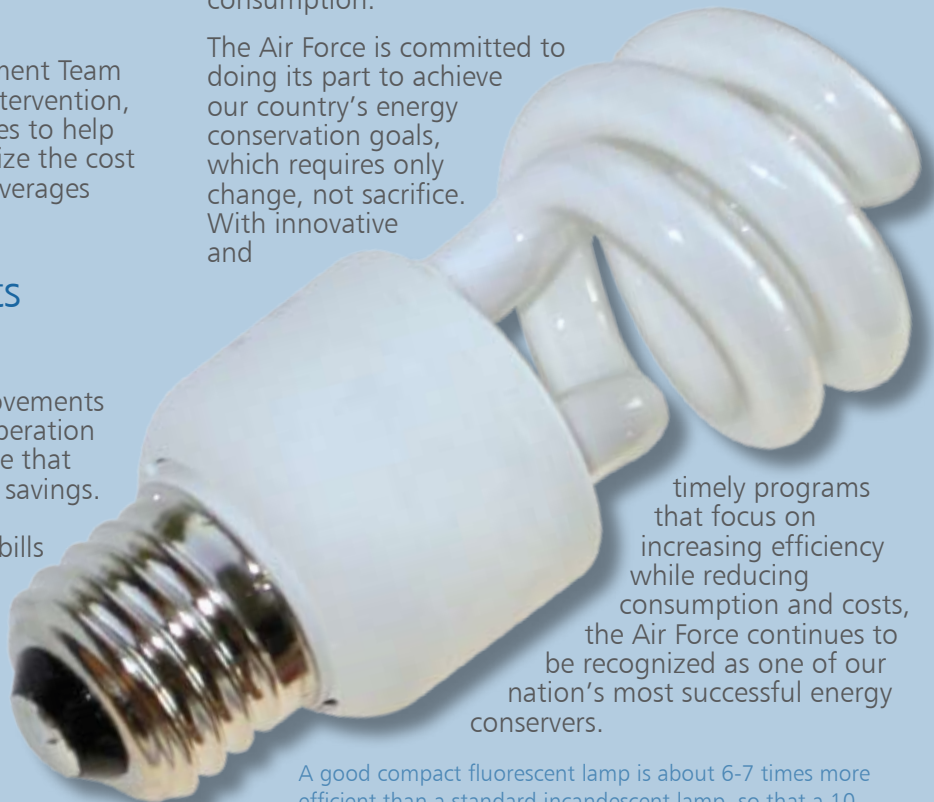
achieve the Energy Star designation have passed criteria for: upgrades in lighting, fan systems, and heating and cooling systems; building tune-ups; and load reductions. Energy Star guidelines also help managers purchase energy-efficient office equipment.

The Air Force applies sustainable design concepts by subscribing to The Leadership in Energy and Environmental Design (LEED®) Green Building Rating System™, the nationally accepted benchmark for the design, construction, and operation of high-performance green buildings. The goal of the Air Force is for 100% of new construction in Fiscal Year 2009 to be capable of achieving LEED Silver Certification.

## Training and Recognition

The third and most important component of the Air Force energy program involves training and recognizing airmen at all levels for their efforts in conserving energy. Trained personnel at all command levels are crucial to the success of this initiative. Recognition is also an important component of building and rewarding energy awareness and savings. The Air Force's own Reducing Energy Appreciation Program rewards installation personnel for their ongoing efforts to reduce energy consumption.

The Air Force is committed to doing its part to achieve our country's energy conservation goals, which requires only change, not sacrifice. With innovative and



timely programs that focus on increasing efficiency while reducing consumption and costs, the Air Force continues to be recognized as one of our nation's most successful energy conservers.

A good compact fluorescent lamp is about 6-7 times more efficient than a standard incandescent lamp, so that a 10 watt CF produces about the same illumination (measured in "lumens") as does a 60 watt incandescent.